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ABSTRACT

The position that the National Assessment of Educational Progress (NAEP) provides a data base that is compatible with various definitions of literacy and standards of competencies and can make a contribution to our understanding of the complex and controversial problem of literacy is supported in this paper. The paper notes that since the NAEP has surveyed a national sample of four age groups over a period of years since 1971, it is well suited for looking at a broad sample and providing longitudinal information. Other advantages of the NAEP for studying literacy that are cited are its comprehensiveness across many areas of study and functional skills, its breadth within single content areas, its covering of affective and background variables as well as achievement, and its ability to respond to new emphases, such as the proposed 1979-80 reading and literature assessment that has new exercises emphasizing comprehension of various kinds of texts. The use of the NAEP data base for the assessment of functional literacy conducted by NAEP in 1974 and 1975 for the National Right to Read program is discussed as an example of the use of the NAEP data base. (MKM)

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CONTRIBUTIONS OF THE NATIONAL ASSESSMENT TO
UNDERSTANDING THE PROBLEMS OF LITERACY

No. 08-FL-50

by

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Introduction

Any effort directed toward extending our understanding of literacy in the United States must accept as a given that no single study, however ambitious or broad, is going to provide more than a few of the many answers we need. The problems of educational literacy are complex and far-reaching. Up to this point, the literature directed toward this subject has been diverse and often contradictory. There are dozens of major and countless minor definitions of literacy. Moreover, over the last decade we have seen the definitions shift and change. In addition to the conceptual controversy related to literacy, there are equally numerous methodological issues concerning the ways literacy is measured and the types of standards which are applied. Indeed, suspicions are raised when 14% of professional and managerial people (who by societal standards would normally be considered "successful") have failed to pass a literacy test (Fisher, 1978). It is not the purpose of this paper to review all of the conceptual and methodological issues related to literacy. These have been thoroughly discussed by several authors (see Nafziger, Thompson, Hiscox & Owen, 1975; Kirsch & Guthrie, 1978; Fisher, 1978). Instead, we acknowledge the fact that literacy is a complex and controversial problem and will show how the National Assessment of Educational Progress (NAEP) can make a modest contribution to extending our understanding of this phenomenon.

Characteristics of the National Assessment

The National Assessment, in its goals and design, is well suited for looking at broad, multifaceted educational and social issues, including literacy. The primary purpose of the National Assessment is the

"assessment of the performance of children and young adults in the basic skills of reading, mathematics, and communication" (Public Law 95-561, 1978). As a part of this mandate, NAEP shall "report periodically on changes in knowledge and skills of such students over a period of time [and] conduct special assessments of other educational areas, as the need for additional national information arises" (Public Law 95-561, 1978). Current specifications for the continuation of the project delineate NAEP's role:

NAEP should not be conceived of as a national test. It is rather, an assessment designed to improve the practice of education in state and local educational agencies. With this in mind, applicants must avoid designing and implementing the project as though it were to lead to the development of federal tests, curricula, or standards (National Institute of Education, 1979, p. 12).

In its implementation, the National Assessment takes the form of a national sample survey of four age groups: 9-year-olds, 13-year-olds, 17-year-olds, and a young adult group which includes 26 to 35-year-olds. The last two age groups are probably the natural focus for the study of literacy; although data on earlier age groups might shed some light on symptoms and future trends. Ten educational content areas have been surveyed;¹ most have been surveyed at two or even three points in time. In addition, special probe areas such as basic life skills, health, consumerism and energy have been assessed. Each year one or more content areas are surveyed. Approximately twelve booklets of assessment items (each booklet comprising approximately 35 minutes of testing) are administered to each age group. An individual takes only one set of items; a separate national sample of approximately 2,500 individuals is used for each booklet. One

¹The ten content areas include art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies, and writing.

of the unique characteristics of NAEP is its multi-stage, stratified, probability sampling procedure which gives accurate estimates of national and group performance at one or more points in time.

Because the National Assessment focuses on performance of groups of students and young adults (rather than individuals) without reference to specific standards, it could be argued NAEP is of limited usefulness for a study of literacy. However, within this framework, we find that NAEP offers some unique capabilities for exploring the problems of literacy. These capabilities reside in the breadth of coverage and longitudinal aspects of the data base. This paper will explain the advantages of the National Assessment data base and its past and potential contributions to an understanding of the problems of literacy.

Advantages of the National Assessment for Studying Literacy

One of the unique aspects of the National Assessment survey is its comprehensiveness. This breadth is apparent in the number of areas it addresses, the variety of assessment tasks within an area, and the inclusion of affective and background information. The National Assessment covers the full range of contents which are the focus of our nation's schools, as well as areas of emerging importance; for example, energy and consumerism. Within this scope, NAEP can accommodate a large range of definitions of literacy. The NAEP data base is applicable to approaches to literacy which focus on the most basic aspects of the production and use of written material. It can encompass basic computational skills as well. The survey includes a variety of basic life skills such as reading traffic signs or filling out a job application form. Finally, for those who take a broad view of literacy, the assessment offers an opportunity to consider

concepts of literacy in areas such as the fine arts, science or citizenship. Thus, the National Assessment is not limited to a single approach to literacy. It provides opportunities for exploring many different alternatives and the chance to compare and contrast several approaches to literacy.

Another important aspect of the coverage offered by the National Assessment is the breadth represented within a single content area. For example, the area of writing includes a variety of writing tasks--descriptive, persuasive and creative. It assesses the ability of students to achieve their writing purpose as well as their skills in spelling and mechanics. Thus, a full range of skills within an area may be considered in an assessment of literacy. This seems particularly important for those who take a situational approach to literacy by defining literacy for a factory worker, for example, in a different way than for a high school teacher. It also allows us to analyze various pieces of the problem. For example, we can find out that 17-year-olds can communicate a simple explanatory message but sometimes use awkward sentences.

The National Assessment is not just an achievement survey. It also assesses affective and background variables. For example, the Mathematics Assessment includes valuable information about students' attitudes toward mathematics, previous instruction, and experience with calculators--all perhaps equally as important as achievement measures with respect to an individual's ultimate ability to cope with basic computational tasks. Across the content areas, basic socioeconomic and demographic information is collected from all students and schools in the sample. In exploring a phenomenon as complex as literacy, no matter how defined, it seems advantageous to include other factors besides achievement.

In addition to the content breadth of the National Assessment, a second unique advantage of the NAEP data base is its longitudinal nature. As indicated earlier, the purpose of NAEP is not to compare individuals against standards of performance. The only benchmarks related to literacy which NAEP provides are national and group average performance on items and groups of items. This does not preclude the possibility of other groups or individuals selecting items which fit their definition of literacy and setting standards which reflect their concept of competence.

There is, however, currently much controversy among measurement experts about the advisability and feasibility of setting competency standards, especially so for "life skill" or "survival" competencies where it is necessary to consider performance on criterion measures of life success (see Bunda & Sanders, 1979; Hambleton, Powell & Eignor, 1979; also the entire issue of the Journal of Educational Measurement--Vol. 15, No. 2, 1978). In light of this controversy, the ability of NAEP to measure trends over time provides an important methodological alternative in the study of literacy. By reporting whether performance goes up or down over time, NAEP can avoid the standard-setting dilemma, while still being able to chart the progress of literacy attainment in the nation.

Thus, National Assessment provides several unique capabilities for exploring the problems of literacy in the United States. It provides a data base which is compatible with a variety of views of literacy. It does not provide standards; however, standards may be applied from outside sources. Furthermore, it indicates changes in performance over time. To examine these capabilities further, we will provide a description of how the National Assessment has been used to furnish the Right to Read Program with national trend data on functional literacy. We will then suggest some

of the potential value of NAEP data for future literacy studies, especially for those studies which might be based on the 1979-80 Reading/Literature Assessment.

The Mini-Assessment of Functional Literacy

In order to obtain more concrete evidence on the status and changes in functional literacy, the National Right to Read Program awarded a grant to the Education Commission of the States for NAEP to conduct in 1974 and 1975 a Mini-Assessment of Functional Literacy (MAFL). The major goal of MAFL was to determine the extent of functional literacy among all 17-year-old students in the United States and among various subgroups of 17-year-old students.

A panel of reading specialists appointed by Right to Read selected 86 exercises representing the types of reading materials encountered in everyday life; for example, signs, maps, graphs, forms, news articles, dictionaries and telephone directories. (For a more complete description of the development and results of MAFL, see Gadway & Wilson, 1976.) Of the 86 exercises, 64 had been used in National Assessment's 1971 regular reading assessment of 17-year-old students. This subset of exercises, called the "truncated" MAFL, provided data for three time points--1971, 1974 and 1975. Each MAFL exercise was classified into one of the five following reading skills: (1) understanding word meanings, (2) gleaning significant facts, (3) comprehending main ideas and organization, (4) drawing inferences, and (5) reading critically.

The results of MAFL were presented in relation to several different standards including:

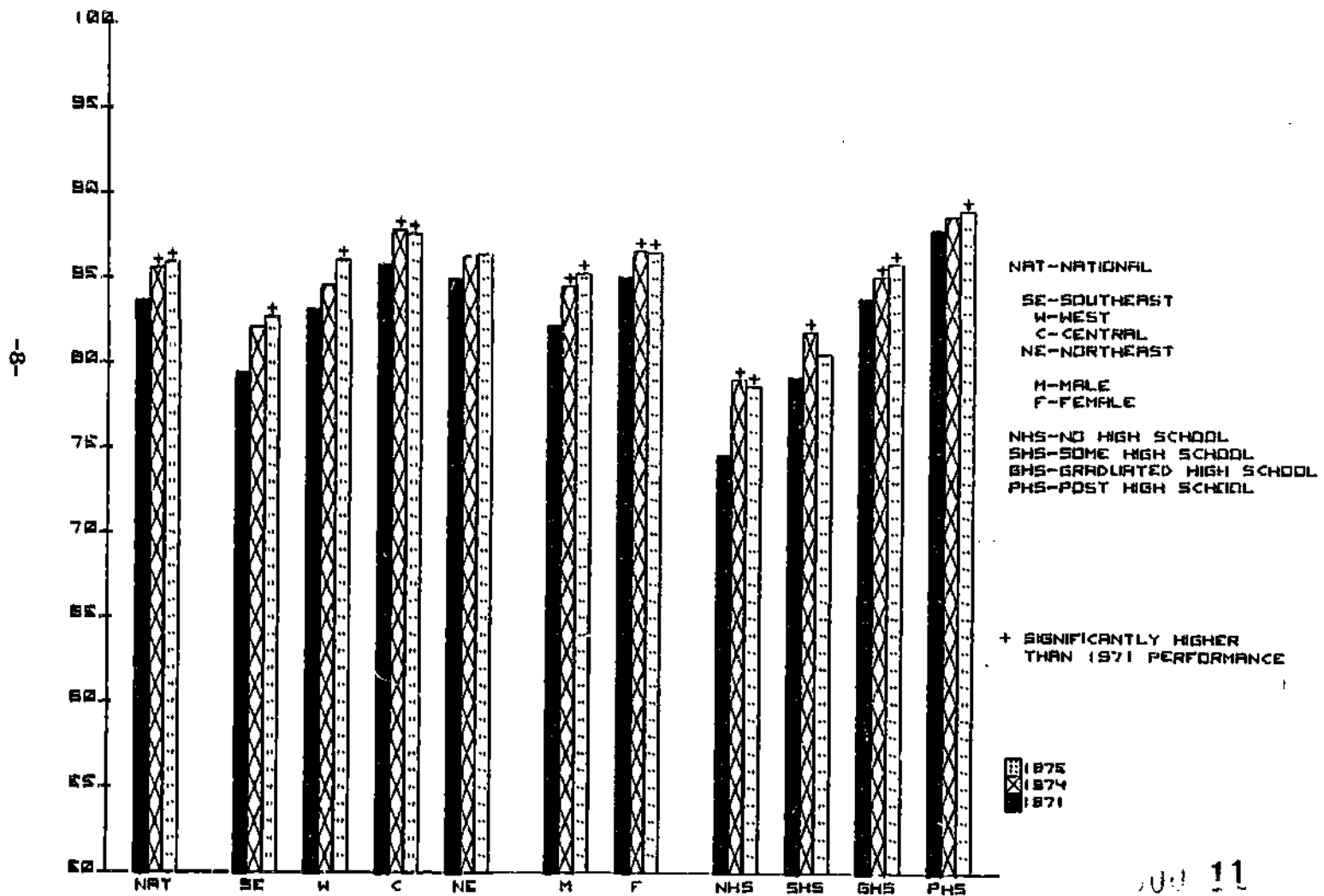
1. The highest expected level of performance (HELP)--This level was defined as the best performance one can reasonably expect based on the performance of a group of known superior readers who have achieved above the ninetieth percentile on a standardized reading test. Here, the percentage of students responding correctly to an exercise was adjusted to a percentage of the superior readers' performance on that exercise. For example, if 70% of 17-year-old students answered a given exercise correctly and 90% of the superior readers answered the same exercise correctly, the percentage of success is adjusted to 77.81% (i.e., 70% divided by 90%, and multiplied by one hundred). The HELP standard was chosen as 100% and if the adjusted percentage of success on an exercise was below this standard, it represented a shortfall from this criterion.

2. The minimally adequate performance standard (MAP)--This was the lowest level above which 17-year-old students were considered functionally literate. Right to Read determined that a 17-year-old student must be able to answer at least 75% of the exercises to be considered functionally literate.

Average performance on the truncated MAFL set of 64 exercises is depicted for 1971, 1974 and 1975 in Exhibit 1. Performance increased nationally from 83.7% to 85.9% between 1971 and 1975. All twenty population groups for which NAEP normally reports results (nationally and by geographic region, sex, race, parental education, and size and type of community) showed some improvement between 1971 and 1975. For fourteen of these twenty groups, this improvement in average performance was statistically significant at the 0.05 probability level.

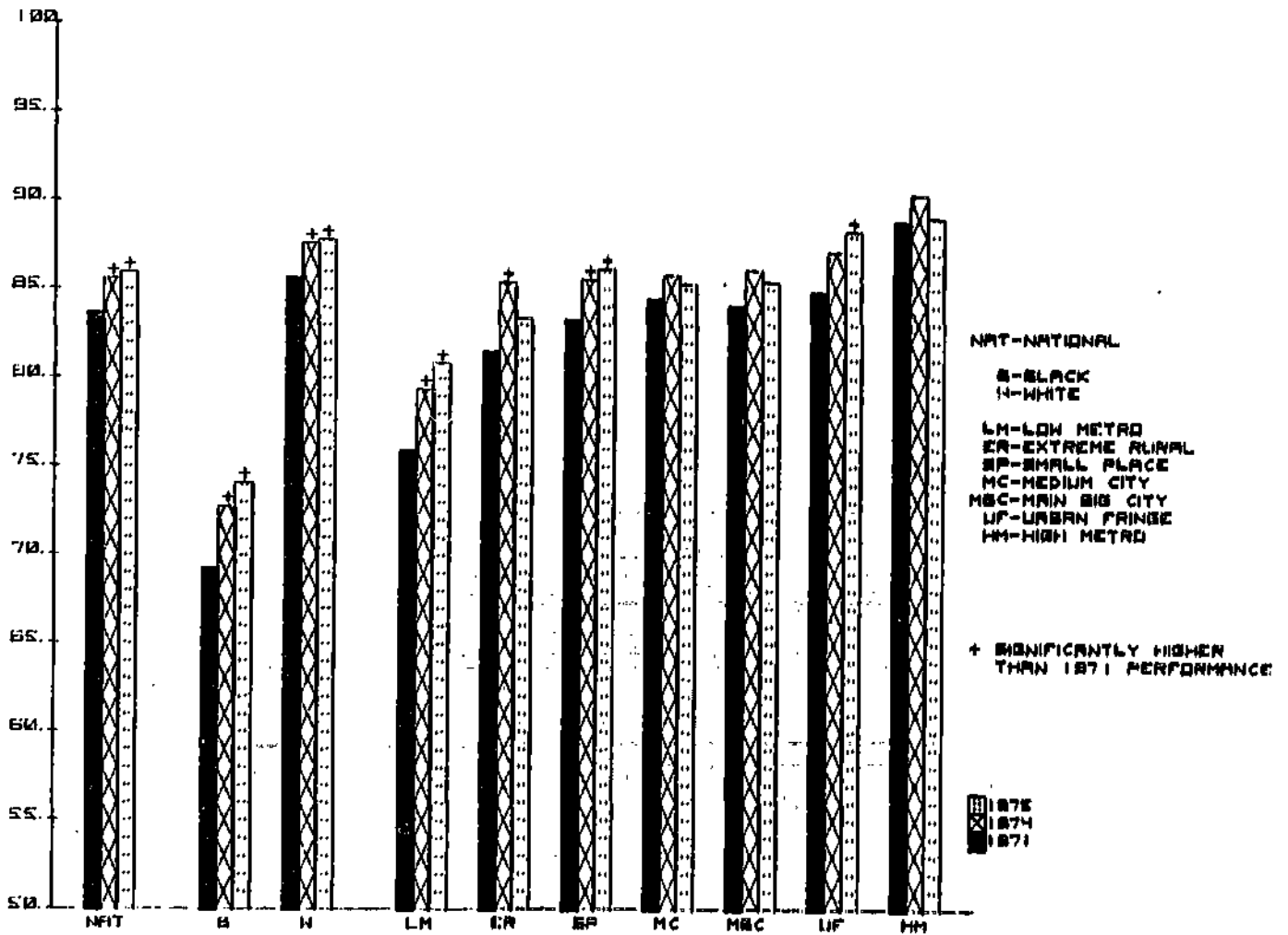
On the complete MAFL set of 86 exercises administered in 1974 and again in 1975, 17-year-old students did best on reading tasks involving

Exhibit 1. The Unadjusted Mean Percentages of Success on the Truncated MAFL Set of Exercises



100 11

Exhibit 1. (Continued)



understanding word meanings in context, and they did least well on drawing inferences and reading critically. On the complete MAFL in 1974, the mean percentage correct was 87.5%, and this percentage remained virtually unchanged at 87.6% in 1975. When these two percentages were adjusted by the HELP procedures, the percentages increased to 91.2% in 1974 and to 91.4% in 1975. These percentages fell somewhat short of the HELP criterion of 100%. At the national level on the 1975 complete MAFL, 87.4% of 17-year-old students attained the MAP standard of at least 75% correct.

Certainly a study such as MAFL is subject to criticism. (Critical reviews of MAFL may be found in Harnischfeger & Wiley, 1976; Fisher, 1978; Kirsch & Guthrie, 1978.) However, what seems important is the fact that the National Assessment, which is broad in purpose and scope, was able to respond to some very specific concerns related to functional literacy. As a result of this effort, we were able to provide some unique trend information about a carefully sampled population of 17-year-old students. It is this type of activity which we would like to encourage further and the following section will suggest some potential contributions of NAEP for the future.

The 1979-80 Reading/Literature Assessment

The 1979-80 Reading/Literature Assessment will provide additional information which could be used for exploring the problems of literacy. This survey has two distinct aspects: (1) the reassessment of reading and literature exercises from previous assessments for determining change, and (2) the administration of newly-developed exercises for establishing a new baseline for future change analysis. The old reading exercises will show change across three time points--1971, 1975 and 1980. The new exercises

will indicate performance at one point in time on a range of activities. The new development reflects an integrated approach to reading and literature. It focuses about equally on expository and literary materials. The passages are all drawn from actual published material and represent what students typically read in school and out of school. They range in difficulty and length from a three-sentence news feature to a complete short story of almost 2,000 words.

A complete list of categories of reading materials is provided in Exhibit 2. Included among the list is a category which is specifically identified as "functional." These passages represent reading matter which students are faced with in many everyday activities. Examples from this category include a want ad, a recipe, various kinds of labels, application forms and articles with various types of utilitarian information. In addition, several passages provide examples of commonly used persuasive and critical language. These include several advertisements, reviews and an editorial. Finally, several of the study skills exercises utilize functional materials, including graphs on energy use and consumer spending, train and bus schedules, a weather map, and a yellow page from the telephone book.

The largest portion of the new development focuses on comprehension tasks and these too reflect diversity and a range of difficulty. They include: (1) comprehending words in context and lexical relationships, such as actor, action and object, (2) comprehending propositional relationships, such as cause, time and instrument, and (3) comprehending textual relationships, such as main idea, purpose, theme, character, mood and tone. An outline of the objectives is provided in Exhibit 3.

Exhibit 2. Categories of 1979-80 Reading/Literature Passages

1.0 Expository Materials

- 1.1 Science
- 1.2 Social studies
- 1.3 People
- 1.4 Leisure
- 1.5 Functional
- 1.6 Persuasive and critical

2.0 Literary Materials

- 2.1 Stories
- 2.2 Other literary prose
- 2.3 Poems
- 2.4 Plays

Exhibit 3. Outline of the 1979-80 Reading/Literature Objectives

1.0 Values Reading and Literature

- 1.1 Values reading and literature as a source of enjoyment
- 1.2 Values reading and literature as a means for gaining information and solving problems
- 1.3 Values reading and literature as a means for increasing self-understanding and understanding of other people
- 1.4 Appreciates the role of reading and literature in sustaining and changing culture

2.0 Comprehends Written Works

- 2.1 Comprehends words in context and lexical relationships
- 2.2 Comprehends propositions and propositional relationships
- 2.3 Comprehends textual relationships

3.0 Responds to Written Works

- 3.1 Responds to written works emotionally and personally
- 3.2 Responds to written works interpretatively
- 3.3 Responds to written works analytically
- 3.4 Responds to written works evaluatively

4.0 Applies Study Skills

- 4.1 Can use charts, graphs and maps
- 4.2 Can use parts of a book
- 4.3 Can use library and reference materials
- 4.4 Can use study techniques

In addition to comprehension items, part of the assessment focuses on students' values regarding reading and literature, students' responses to written works, and students' abilities to use various study skills. Finally, background information is collected about students' reading experience and other relevant factors, such as television viewing, time spent on homework and bilingual experience.

The variety in stimulus materials, comprehension tasks and other information on student performance, attitudes and background in the 1979-80 Reading/Literature Assessment should provide a fruitful data base for exploring the problems of literacy. Of special relevance would be an in-depth study of the NAEP change data, perhaps focusing on trends in functional literacy achievement spanning the 1971-1980 time period. For instance, there was a national decline between 1971 and 1975 in "higher level" reading skills of 13- and 17-year-olds, but during that same time period, scores did not decline on the more "basic" reading skills required to function in society. Will the 1979-80 assessment show continuations of those trends? Will 9-year-olds continue to show improvement in all areas? Will the improvement of reading skills of 9-year-old blacks in 1975 turn up again in their 13-year-old counterparts in 1979? Will a more detailed analysis of the performance data and student background information provide better explanations for the observed trends?

The newly-developed materials will likewise provide a rich data base for studying literacy. For those who are interested in looking at a continuum of text difficulty, there would be an opportunity to explore performance across a range of materials. How well can students comprehend a variety of functional materials from simple instructions to complex political rhetoric? It would be possible to focus on particular types of

comprehension tasks. How well do students comprehend simple, explicit messages? How well do they comprehend implied messages? Various attitudinal and background data could be used in conjunction with performance data to explore contributory or related factors. How do students' values, self-concept as a reader and family background affect comprehension?

We see from our past experience with MAFL and anticipate with the addition of the 1979-80 Reading/Literature Assessment that the National Assessment can make an important contribution to understanding the problems of literacy. NAEP provides a data base which is compatible with various definitions of literacy and standards for competence, including a measure of trends. Certainly NAEP cannot provide us with all the data we need about this critical educational and social issue. However, an exploration of various sources of data, including NAEP, is likely to push us toward a better understanding of this complex problem. The National Assessment is interested in cooperating with individuals and organizations in this important effort.

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